ANTON

Sprint V1

Multi-function flue gas analyser

Sprint V1 User Manual

M09990
August 2006
Issue 1

TELEGAN
gas monitoring

Safety information:

- Read and understand all instructions in the operation section of this manual before use.
- Do not substitute components as this may impair safety and invalidate warranty.
- Observe all warnings and instructions marked on the unit and within this manual.
- If this product is not working properly, read the troubleshooting guide or call Telegan.
- Ensure qualified service personnel change sensors and provide maintenance and calibration.

Additional information:

Sprint is designed to support the working practices defined in British Standard BS7967 and the Design Standards EN50379, BS7927 for flue gas analysers. It is highly recommended that users are fully conversant with BS7967 when using a flue gas analyser for servicing or installing a boiler system.

Performing CO measurements

When performing any CO measurements **ensure the unit is zeroed in clean air** in accordance with British Standard BS7967. A suitable location for sampling clean air will be outside of the building where the boiler system is installed.

1. Repair of this equipment and gas sensor replacement shall be carried out by the manufacturer or certified service centre in accordance with the applicable code of practice.
2. If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected.
3. The equipment is only certified for use in ambient temperatures in the range -10°C to +50°C and should not be used outside this range
4. Use only charger(s) supplied by Telegan.
5. Use only the appropriate Telegan supplied cables for connection to the sockets on the instrument.

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Sprint V1
Multi-function Flue Gas Analyser

Thank you for purchasing the *Sprint V1 Multi-function Flue Gas Analyser*. Sprint has redefined flue gas analysis and will give you years of unparalleled service and reliability.

Please read the instructions carefully before use. Keep the manual for future reference.

Unpacking

Important: ensure unit is fully charged.

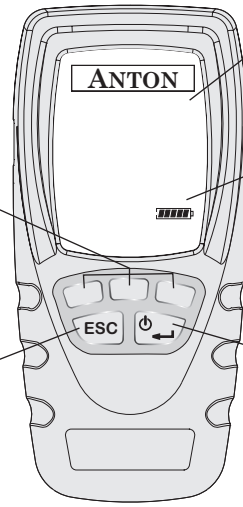
Remove the Sprint unit from the packaging. The Sprint accessories will be located in the carry case. Check the contents are complete, you should have:

- Carry case;
- Sprint unit;
- Mains battery charger power supply;
- Rubber boot;
- Probe, including water trap and tubes;
- User manual;
- Certificate of calibration;

Warning:

Do not attempt to use any other charger power supply, with this unit except the one(s) supplied. Failure to comply could invalidate the warranty and may result in permanent damage to the unit.

Overview



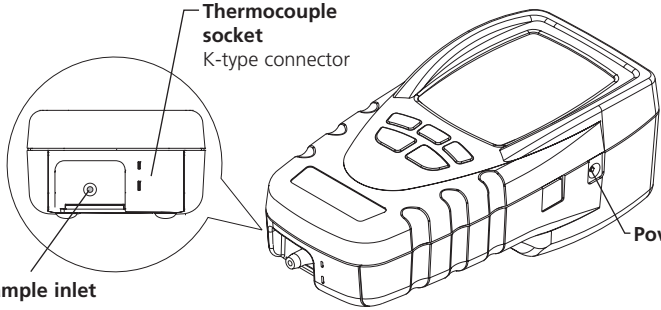
Display

Battery icon
Three bars show complete charge

Soft keys
Use these unmarked buttons to make selections from the menu, start and stop tests, print and store results.
See section Operation for more details

ESCAPE key
Use this button to quit tests and step back through menus.

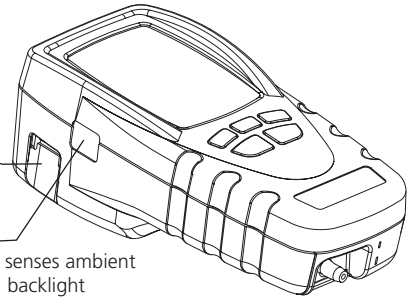
ON/OFF/ENTER key
Press and hold button for two seconds to switch on and switch off Sprint unit. Use this key to finish edits and save changes.



Thermocouple socket
K-type connector

Power jack

Flue sample inlet



Exhaust exit
Warning: *do not inhale exit gas exhaust or block exit*

IR window
Printer output, senses ambient light to control backlight
Tip: *to quickly activate backlight, cover this window*

Probe connections

Flue gas analysis

Connect the flue probe to the flue sample inlet and the thermocouple to the k-connector marked FLOW (Efficiency).

Differential temperature test

Connect one thermocouple probe to the k-type connector. Sprint will display a soft key option to switch between T1 and T2 snapshot measuring points.

Room CO safety test

Connect CO room safety test probe (optional), where suitable, to the flue sample inlet.

Sprint is supplied with a rubber boot for protection of your Sprint unit. A magnet on the reverse of the rubber boot can be used to place the Sprint unit in location on the boiler system for easy hands-free operation.

Note: The pump will operate at different speeds or switch off depending on the test being performed. This will vary the pitch of the sound from the pump and does not indicate the pump is performing incorrectly.

Quickstart Guide

Switch On

Important: please connect flue probe first before switching on your Sprint unit, ensure the water trap is empty and is fitted in the right direction. Do not insert probe in flue till after auto zero. Always start in clean air.

Press and hold the ON/OFF/ENTER key for two seconds. Sprint will emit a few rising beeps, performs a screen test and starts the pump to purge any residual gas from the unit. Ensure the gas exhaust outlet is not blocked.

Auto zero

The welcoming splash screens are displayed for approximately 30 seconds and will automatically go to the Auto zero screen. The splash screens show software version, serial number, calibration due date and header details. When Auto zero is complete the display will change to the Test menu. Warm-up should be extended if sensor needs to recover from previous gas exposure.

When Sprint has completed warm-up the auto zero screen will be displayed. **Ensure you are in clean air before proceeding.**

Ensure the sensor reading is stable, press any of the top three buttons to begin auto zero. Sprint will display — — if the gas readings are stable. Otherwise, it will display / ¯ or \ _. After a successful auto zero Sprint will display the *Test* menu screen and switch off the pump.

Tip: *auto zero Sprint outside of the building or well away from the heating appliance to avoid any potential gases in the vicinity affecting the auto zero process.*

Note: Sprint will switch off the pump when not performing tests or purging.

Using the menu

Press the ESC key to display the *Main* menu. Use the soft keys to scroll, select and edit menu items. Press the up or down arrows to make change or the ESC key to cancel. Press the centre button to accept the change or the ESC key to cancel.

Changing fuel and units

Fuel selection is made on entry into the Flue Gas Analysis test.

Fuel Options: select one of the following options: natural gas, LPG, heavy oil, light oil, coal, wood, coke, Biomass and Bagasse.

Temperature selection is from the settings menu.

From the *Main* menu select *Settings*. From *Settings* menu select *Temp units.*

Temperature scale: Centigrade or Fahrenheit

Switch off

Turn off unit in clean air and ensure any gas is purged from sensors. Press and hold the ON/OFF/ENTER button for approximately two seconds. The power off screen will be displayed and the pump will run to purge the sensors. The pump will run for up to 30 seconds to purge unit if gas is present. Sprint will normally switch off in 10 seconds. Press the ESC key to cancel the switch off sequence.

Charging battery

Plug the supplied charger into the charger socket. The batteries will recharge in six hours from flat. You may leave the unit on charge for longer periods, e.g. overnight, without damaging the unit. A fully charged unit will give up to nine hours of operation. A shorter charge time can be applied, such as 1/2 hour, to allow a more limited length of operation.

Performing tests

Select *Tests* from the *Main* menu. Refer to section *III Operation* for more details.

1. Flue gas analysis

Before performing the flue gas analysis test, check the water trap is clean and is upright (arrow should point upwards).

To begin test, select *Flue Gas* from the *Test* menu. Sprint will ask you to select a fuel by using the up and down arrows on-screen. Press the centre button to make your selection. Sprint will switch on the pump and begin making measurements. Use the soft keys to print or log the readings. Press the centre button to display the three screens available:

Screen 1: CO, CO2, CO/CO2 ratio.

Screen 2: O2, excess air and efficiency.

Screen 3 O2, CO and temperature.

To end test press the ESC key.

> ***Warning:***
> *During testing, ensure the combined filter and water trap is not blocked or full. Failure to do so may result in an error message.*

Note: for personal safety a carbon monoxide alarm will activate at 90ppm CO. This will deactivate when CO levels drop below 45ppm. This is to protect the user from potential hazardous exhaust gas levels.

Tip: *If — — — — is displayed- flue probe is not in flue or not connected.*

2. Differential temperature test

Sprint can perform a differential temperature test with one thermocouple probe. To begin test, select *Diff Temperature* from the *Test* menu. Check the units displayed are the correct temperature scale. If no probes are connected Sprint will display — — — —.

Single probe test

Sprint will display T1 or T2 on the screen to represent the first and second reading.

1. Place probe in position to make measurement T1.
2. Press the soft key icon T1 to take a snapshot reading of T1. (Do not remove probe until this snapshot is taken.)

3. Move the probe into position to take second reading T2. The screen will display the icon T2 to show temperature reading T2 is being taken.

The screen will display the snapshot temperature, the live probe temperature, and the differential temperature.

Use the soft keys to print or log values.

To end test press the ESC key.

3. Room CO safety test

Ensure the unit has been zeroed in clean air during switch on before performing this test.

Note: For further details on performing Room CO Safety Tests, see Appendix I.

1. Select *CO Room safety* from the *Test* menu. Sprint will display the *Appliance* menu. Select the appliance from the list by using the up and down arrow. Press the centre button to confirm appliance selection.

2. Connect probe if required to the Sprint unit and place at the recommended height. Refer to British Standard BS7967 if necessary.

3. The pump will switch on in readiness for test.

NB. The sound of the pump operating does not indicate the test has begun.

Press the *Start?* key to start test. During the test the screen will display the CO reading, peak CO reading and duration of test.

The test will run for the required duration by appliance according to BS7967.

Sprint will emit an alarm if 30ppm (or 90ppm) threshold is exceeded. Sprint is programmed with pass/fail criteria for this test. Refer to British Standard BS7967 for further details on performing room CO safety tests.

Once test can be complete press the *Stop?* soft key to finish. Use the soft keys to print or log readings.

To stop test at any time, press the ESC key. Use the soft keys *Quit?* To stop or *Cont?* to carry on.

When printing Room CO safety test results Sprint will also provide data showing for how long the recommended level of CO was exceeded. This is expressed as hh:mm > allowed. It also provides what the recommended maximum level is according to the standard.

I. Operation

Before using the Sprint flue gas analyser on any heating appliance installation, ensure you are familiar with the working practices defined in the BS7967 which details how to perform certain tests and safety issues to consider.

Auto zero setting

Allow the Sprint unit to auto zero during switch on in clean air before performing any of the following tests: flue gas analysis and room CO safety test.

Ensure all tubes and probes are connected before switch on and zero outside in clean air.

Smart-purge Pump control

Sprint runs the internal pump during purge at switch on and switch off, and during some tests. The speed and therefore the sound emitted by the pump, will vary depending on the test being conducted.

To save on the battery life, Sprint will turn off the pump when it is not required. When the pump is running ensure the exit gas exhaust is not blocked and do not breath in the exhaust gases.

1.1 Menu and operator button overview

Menus

Sprint provides a large custom LCD with blue backlight. Navigation and functions are provided by three soft key buttons which change according to what you are doing.

Use the soft keys to navigate menus, select, start and end tests, change options and select actions such as print and log Use the escape key to exit menus, exit tests and step back through screens

After your Sprint unit has been switched on and performed an auto zero the display will show the Test menu screen ready for use. To display the *Main* menu press the ESC key.

To enter a menu item, use the up and down arrow soft keys below the screen icons to scroll the menu list and press the centre soft key to select.

Some menus have their own submenu. Press the ESC key to exit a menu, press

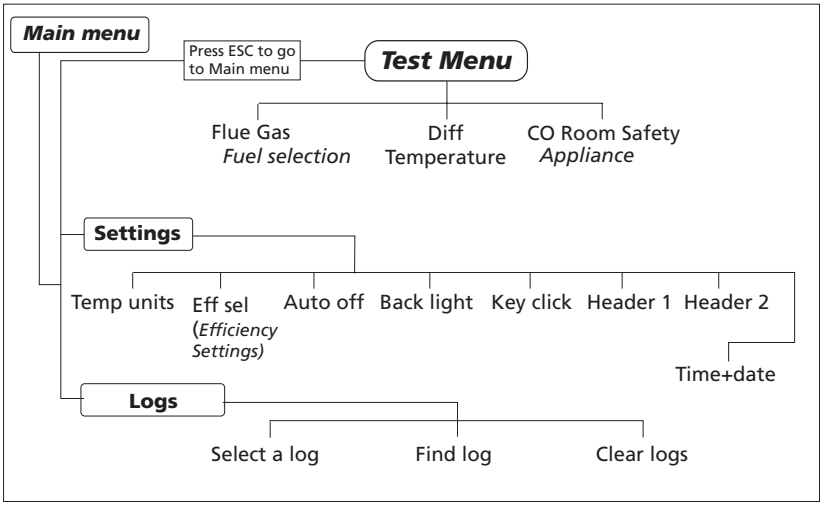
ESC twice to return to the *Main* menu from a submenu.

The soft keys control the function displayed above them on the screen. These will change depending on the test or menu, or if the ESC key is pressed.

The menu structure is shown below:

How to display unit serial number, identity and software version

Press the ESC key from the *Main* menu



II. Setting Up

2.1 Configuration Options

Fuel Options:

Sprint displays the current fuel selection before entering the flue gas analysis test screen. To change the fuel option, use the soft keys below the up and down arrow symbols to select the fuel and the centre button to confirm the selection. Sprint then enters the flue gas analysis screen.

Fuel options available are: natural gas, LPG, heavy oil, light oil, coal, wood, coke, biomass, bagasse.

To make other configuration changes press ESC to enter the *Main Menu* and select *Settings.* Press the up and down arrow keys to move between selections and the centre key to confirm selections.

Temperature Units

Use the soft keys to select the submenu *Temp units*.

Temperature units are: degrees *Centigrade (°C)* or degrees *Fahrenheit (°F).*

Efficiency Selection

Use the soft keys to select the submenu *Eff sel.*

Efficiency settings are; *Net* or *Gross*

Auto-off Selection

Use the soft keys to select the submenu *Auto off.*

Auto-off options are: *Disable, 5, 10, 15, 20, 25, 30, 45, 60 ,75 and 90 minutes.*

Press *Set (or disable)* to select your preferred auto-off timeout period

Backlight Control

Use the soft keys to select the submenu *Back light.*

Back light settings are: *Controlled (Default), Off, Dim and Bright.*

Keyclick control

Use the soft keys to select the submenu *Key click*.

Keyclick control settings are : *Enable* and *Disable*.

This controls whether Sprint emits a beep when you press a keypad button.

Header 1 and Header 2

Use the soft keys to select the submenu *Header 1* or *Header 2*. These are your details shown on the log printout.

This sets the top line (1) or bottom line (2) of the header and is displayed at the top and bottom of the display during start-up.

The – (A) button sequences back through alphabet and symbols and the + (Z) button sequences forward through alphabet and symbols. The ➔ button saves current letter and moves cursor to set next letter.

Once cursor is moved through all previously saved spaces, the ➔ button changes to Save. Press Save to complete changes or + or – buttons to continue, up to maximum number of symbols (24).

Time and Date

Use the soft keys to select the submenu *Time+Date*.

Use the – and + keys to set the *Hour, Min, Day, Month,* and *Year* sequentially. Once you have set the *Hour*, press the button marked *Hour* and Sprint sequences to *Min*. Likewise press *Min*, to save minutes and move to *Day*.

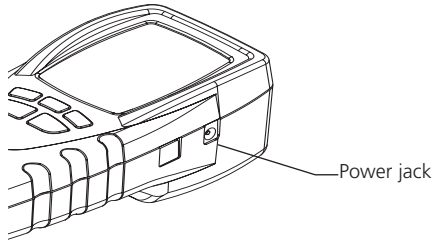
Press ESC to save your date/time settings. Note that resetting the time and date changes your cal due date by the same amount.

III. Battery Charging

The Sprint has a lithium-ion rechargeable battery and will operate for up to 9 hours when fully charged, depending on the type of test used.

Low battery

When the battery is low, Sprint will display a low battery icon. If the battery gets too low, then Sprint will give further warning before switching off.



Use of the charger as a power adaptor

The Sprint charger can be used to power the unit and will continue to charge whilst operating the unit.

Automatic battery saver

The Sprint unit will automatically power down if left unused for 15 minutes (adjustable). Sprint will warn user when power down is imminent.

Charging the batteries

1. Plug the charger into a mains socket.
2. Connect the charger to the Sprint using the power jack on the side of the unit.

   Switch on the power at the mains socket. The unit would normally be left switched off for charging. The display will show the battery charging icon.

Warning:

Do not attempt to use any other charger with this unit except the one(s) supplied. Failure to comply could invalidate the warranty and may result in permanent damage to the unit.

IV. Maintenance and Calibration

General

To keep the display panel and operator buttons free from dirt build-up, regularly wipe over your Sprint unit with a slightly damp cloth.

Protective boot

To protect Sprint from dirt and knocks a rubber boot is supplied. This boot is supplied with concealed magnetics in the rear.

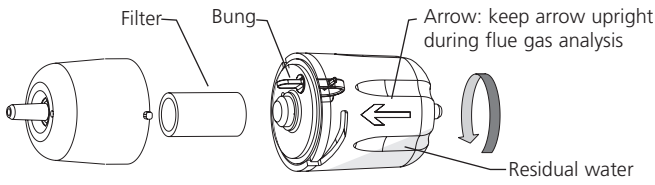
4.1 Unit

The Sprint should be calibrated once a year. Your Sprint unit will also display the calibration due date at switch on and will warn you when calibration due date is drawing near. If the calibration due date has passed, the Sprint unit will display a message 'Calibration overdue.'

4.2 Water trap

The combined filter and watertrap is used in-line between the probe and the unit. Before performing any tests, check that the filter is clean and there is no water inside the trap.

Filter



The filter element should be changed if the filter has become contaminated or dirty. If the filter has become soaked with water, remove from trap and leave to dry before reusing. Ensure 'O' ring remains in place.

Warning: Filters must be used at all times. Failure to do so may invalidate the warranty.

To change the filter

Unscrew the filter-housing, remove the old filter and replace.

Water

To empty the water trap, unscrew the filter-housing, remove the bung and empty. Replace bung after emptying.

V. Specification

Instrument

Operating temperature range	-10°C to 50°C (14°F to 122°F)
Battery	Lithium-Ion. Life up to 9 hours dependant on test used. 15% left warning.
Recharge time	Minimum 6 hours from flat.
Charger input voltage	230 V; 50 Hz AC
Standard Fuels	Natural gas, LPG, heavy oil, light oil, coal, wood, coke, Biomass and Bagasse
Display	Back lit segment and matrix combined LCD
Menu	Intuitive structure, tab selection on screen
Dimensions	75 x 168 x 65 mm
Function buttons/key pad	5 button keypad
Weight	440 g (0.97lbs)
Pump	Flow fail indication, SmartPurge
Enclosure	Integrated robust protective case Protective rubber boot with integral magnets
Standards	BS7927, EN50379, BS7967

Gases

Range Display	Resolution	Accuracy	Detection limit	Response time (t90)	Recovery time	Diagnostics
Oxygen 0-25%	0.1%	± 0.2%	0.3% v/v	50 sec	30 sec	✓
Carbon monoxide 0-10,000ppm	1ppm	<20ppm; ±3ppm >20ppm; ±3%	1ppm	90 sec	60 sec	✓
Carbon dioxide (Calculated) 0-25%	0.1%	±0.2% v/v	0.2% v/v	50 sec	30 sec	
CO/CO2 Ratio 0 to 0.9999	0.0001					

Other Measurements

Measurement	Range
Temperature (selectable °C or °F)	-50° to 1100°C (-58° to 2012°F)
Efficiency	0-100% (net or gross selectable)
XSAir	0-100%

Communications

IR Port

X. Accessories and Spare Parts

Telegan General Spares

Part number	Description
CAS29003	SPRINT V CARRY CASE
PRB29000	SPRINT V FLUE PROBE INC WATER TRAP WITH FILTER
ENC29001	SPRINT V PROTECTIVE BOOT WITH MAGNETS
CHG29001	SPRINT V UK CHARGER
FIL29001	SPRINT V WATER TRAP INC. FILTER
FIL99008	FILTER ELEMENT

VIII. Troubleshooting Guide

Sprint will provide on-screen messages which advise clear actions. Contact Anton if unsure on how to proceed.

Symptom	Cause	Recommended User Action:
Instrument will not turn on when on/off button is pressed and held for 2 seconds.	Battery flat	Connect charger and retry. Battery may be flat. The instrument is designed to prevent deep discharge occurring and will turn it self off when battery level gets too low.
Instrument will not turn on and charger symbol is not displayed when charger is connected.	Battery flattened beyond standard charging point.	Ensure charger is correct type. If so, plug-in and leave connected. Check to see if charging symbol appears every 4-6 hours. If it does not and unit does not switch on, return both unit and charger for service.
Pump sometimes stays on at a faster rate, particularly when exiting the Flue Gas Analysis or CO Room Test.	Smart purge is operating. CO sensor is recovering from exposure to gas.	Remove probe from flue. Continue to use the instrument as normal.
Pump flow fail alert	Filter/water trap or sample line blocked.	Empty and clean filter/water trap. Ensure sample line is free from blockage.
Auto-zero failed	Sensors exposed to gas or faulty.	Switch off and on, ensuring you zero in clean air and sensors are purged. If unit continues to fail auto-zero, return for service.
Alarm activates in CO Room safety test	CO is reading greater than 30ppm.	Dependant on safety procedures.

Symptom	**Cause**	**Recommended User Action:**
During auto zero the CO reading does not stabilise.	CO sensor faulty or recovering from high CO exposure	Return for service ASAP or ensure unit is purged and allow sensor to recover.
Sometimes negative CO readings are displayed.	High CO exposure zeroed in auto zero sequence	Turn off and on and repeat auto zero in clean outside air, allowing time for the CO sensor to recover and stabilise.
Sometimes "!>" or "!<" is displayed in place of a number.	Sensor is out of range.	Contact support for advice. Return for service if problem persists or other failures are observed.
Cal due date has changed.	Time/date has been amended.	Check current date and time is correct. If the cal due date is set to more than a year's time then return for service ASAP.

Appendix I: Carbon Monoxide Room Safety Tests

Sprint V instruments are designed to assist heating engineers to work to the BS 7967:2005 specification for carbon monoxide room safety testing. You should refer to BS7967, which defines the requirements, details the methods as well as the pass and fail criteria for various types of appliances.

CO Room Safety Test in the Sprint V instruments is designed to measure the build up of carbon monoxide levels in a room where a gas appliance is in use and record those values each minute for the duration of the test. In addition at the end of the test it assists the engineer (in an advisory capacity only) to determine whether the test has passed or failed or if the results are invalid. In certain circumstances, where the results are borderline or open to interpretation, the instrument will ask the operator to decide if the test has passed or failed, and will record the operators decision.

Please note: *ultimately it is the responsibility of the operator to ensure that the test is correctly performed to the BS 7967:2005 specification. If the data does not support the result or the operator suspects it is not reliable due to local conditions (such as carbon monoxide level changes due to cigarette smoke or vehicle traffic) or incorrect, then either the test should be repeated or the operator should seek expert advice.*

CO Room Test Pass and Fail Test Specifications

	Type C: Room sealed appliance	Type B: Boiler (open flue)	Type A: Cooker (flueless)	Type A: Water heater (flueless)	Type A: Space heater (flueless)
Max Allowed CO:	10 ppm	10 ppm	30 ppm	10 ppm	10 ppm
Max Peak Duration exceeding Max Allowed CO:	60 secs	60 secs	20 mins	30 secs	60 secs
CO Alarm Level:	30 ppm	30 ppm	90 ppm	30 ppm	30 ppm
Min Test Duration:	15 mins	15 mins	20 mins	5 mins	30 mins
Max Test Duration:	30 mins	30 mins	30 mins	10 mins	30 mins

Result Codes

The pass or fail result is displayed when the test completes and is printed on the report as well as recorded in the log. If the test fails a code number is also displayed, printed on the report and recorded in the log. This fail code identifies the way in which the test failed and can help identify the cause. Also when the

test completes a short text message associated to this code is displayed in a pop-up prompt dialog screen, to explain the reason for failure.

The result codes and associated prompt dialogue messages are as follows:

RESULT & CODE	POP-UP PROMPT ON-SCREEN
"PASSED"	None
ANY "FAILED"	"Warning - CO Room Safety test failed."
"FAILED (1)"	CO levels did not fall or unstable.
"FAILED (2)"	CO unacceptably high (for too long).
"FAILED (3)"	CO dangerously high.
"FAILED (4)"	Unacceptable or incomplete.
	"Press ESC key to continue."

Pass Cases

Normal Acceptable Peak of CO

Normally for a test to pass, the CO levels must peak without exceeding the maximum allowed CO level and then fall (by at least 0.5 ppm) below the peak value before the end of the test. Note that it is not necessary for the CO level to reach or be close to zero at the end of the test, so long as it remains below the maximum allowed CO level.

The result code is: **PASSED**

Very Low Levels of CO

If the CO levels remain below 2.5 ppm (ie: close to clean air or background noise levels) for the duration of the test, then the test is considered to have passed.

The result code is: **PASSED**

Failure Cases

Excessive Levels of CO

If the CO level exceeds the CO alarm level then the test is considered to have failed and should be immediately aborted. The CO alarm may be triggered at any stage (before, during and after completion of the test) and continues to annunciate until the CO level returns to a safe level.

The result code is: **FAILED (3)**

NB: *The alarm should prompt the operator to take appropriate action according to BS7967 and safety procedures. The sensors in the instrument should be purged with clean air and allowed to recover.*

Unacceptable Levels of CO

A peak duration timer records whenever the CO level exceeds the maximum allowed CO level during the test. If the total peak duration time exceeds the max peak duration allowed then the test failed due to unacceptable levels of CO.

The result code is: **FAILED (2)**

Acceptable Levels of CO with no Peak

If there is no peak in CO level even though it remains below the maximum allowed CO level, then the test is failed.

The result code is: **FAILED (1)**

Operator Pass/Fail Cases

The following results are considered to be operator determined whether the test passes or fails:

CO Level Exceeds Max Allowable Level for a Short Duration

For some appliances (eg: cooker) a peak exceeding the maximum allowed CO level may be acceptable, provided the CO level falls back below this level within the max peak duration time. It is up to the operator to determine if the result is acceptable or not.

If the operator chooses to fails the test, the result code is: **FAILED (4)**

Otherwise the result code is: **PASSED**

Other Cases

When a test is not performed correctly, the results are inconclusive or there is insufficient or unreliable data Sprint V attempts to interpret the readings detected and fail the test. It is possible for the results of a test to appear to be valid when it was performed incorrectly or the data collected was unreliable in some way. Please refer to BS7967:2005 and ensure tests are carried out correctly. Sprint V tries to reject incorrectly taken test readings but should not be relied on to instruct engineers on correct working practice.

Multiple Peaks of CO

The overall peak CO reading recorded will be the latest peak CO reading that was higher than any previous. The peak duration recorded will be the total time the CO readings exceeded the maximum allowed CO level. The pass / fail criteria are applied as before based on this information. Sprint V does not expect to record multiple peaks of CO where the reading goes up and down more than once.

Unstable or Rising Levels of CO

If the CO level in the last minute of the test is not lower than the overall peak CO reading then Sprint V assumes that the CO level has not fallen so the test will fail. The test will also fail if there is a significant build up of CO levels at the end of the test and levels are still rising or the CO level in the last minute of the test is not lower than the overall peak CO reading.

The result code is: **FAILED (1)**

CO Level Exceeds Max Allowable Level and Peaks for Unknown Duration

If the CO level exceeds the maximum allowed too close to the end of the test then the test is failed. This can occur if there is a build up of CO levels towards the end of the test or the appliance fires up late on in the test or the test is stopped too early. The test should be repeated if this occurs.

The result code is: **FAILED (2)**

CO Level Does Not Start Close to Zero

It is important that the instrument is zeroed in clean air at switch-on. Failure to do so will invalidate the test result. BS 7967-2:2005 also requires that the room is well ventilated prior to starting the test. However it is possible that there may be a residual background CO level (eg: due to traffic fumes). The instrument will display a pop-up box prior to starting the test if the CO level is more than 2.5 ppm.

ANTON

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